

MARINE REVIEW.

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Lloyds Register and the Insurance Cut.

The Inland Lloyds Register for 1891 has been issued and, as had been expected, there is a reduction of about 9 per cent. in valuations. Before discussing this cut and the unfavorable comment caused by it, it might be well to show what the register contains, although comparisons with former years are not of as much significance as they would be were it not for the fact that a large number of the poorer craft are dropped from the book altogether, in addition to the reduction in values. As shown by a summary printed below, the new book contains 2,093 vessels, with a total net registered tonnage of 845,197 and a total valuation of \$54,197,250. The register of a year ago contained the names of 1,974 vessels, with a total tonnage of 764,572 and a valuation of \$50,200,800. The gain in the number of boats is 119, in net tonnage 80,625 and in value \$3,996,450. This represents, of course, only the business fleet or the better class of boats on the lakes. In a few cases valuations are not given in the new book but they are based on last year's values or estimated in the following summary:

Class.	No. of Boats.	Net Tons.	Valuation.
Sidewheel	51	16,215	\$ 1,985,500
Steamships.....	710	509,747	41,462,050
Sail and consorts.....	883	306,828	8,253,000
Tugs.....	449	12,407	2,496,700
Total.....	2,093	845,197	\$54,197,250

Last year's register with the supplements issued from month to month during the season of navigation contained the names of 2,053 vessels aggregating 845,252 tons and valued at \$58,113,300. Thirty-four of these boats, aggregating 16,306 tons and valued at \$757,000 were lost. This would leave to be transferred to the new book 2,018 vessels of 829,219 tons, valued at 57,356,300. By careful figuring, it has been found, after making allowance for the boats launched during the winter, that the total value of last year's fleet has been cut to \$52,168,250, or about 9 per cent.

The great bulk of the reductions are on vessels valued at \$20,000 to \$30,000, although some of the best class of vessels have also been heavily cut. Many A1½ vessels have been reduced to A2, and all this means higher rates for the insurance companies. In Cleveland the new ratings are criticised most severely and the feeling against the manifest unfairness of some of the reductions is very strong. It is generally predicted that a continuance of the policy shown by the underwriters this year must result in mutual insurance or some other scheme for relief. Although Cleveland owns more vessel property than any other port on the lakes, the city was not represented on the committee having charge of this work. The committee was made up of Edward Peck of Detroit, W. D. Robinson of Buffalo, Mr. Tuttle of Milwaukee, and Capt. Rounds. Detroit interests were cared for while Cleveland was made to suffer the greater portion of the loss.

The Lake Carriers' Association.

At the time of the last annual meeting of the Lake Carriers' Association the membership had reached a point where the tonnage dues of 1 cent per ton were of an amount sufficient to accomplish a great deal for the general welfare of the lake marine, and it was shown that the association had worked many benefits, especially in the way of favorable congressional legislation. Some fault has been found with the association in the past among vessel owners outside of Buffalo, but it must be admitted that a better understanding among the different interests has brought about a more amicable feeling, and improvement in the workings

of the association is recognized and appreciated. It is evident from last year's work that an increased membership will make this organization a wonderful power and, as Mr. H. M. Hanna said at a recent meeting of the Cleveland Vessel Owners' Association: "If there are faults to be found in the general organization fight them as members and hold to that ground until improvement is secured, instead of sacrificing the important interests involved in a full membership." Since the last annual meeting of the association the boats of the Cleveland Iron Mining Company, St. Clair Steamship Company, Brown Steamship Company, Lake Superior Iron Company and Menominee Transit Company, all controlled in Cleveland and having a tonnage of about 25,000 with a valuation of \$2,675,000, have been added to the membership.

A Home For Men of the Merchant Marine.

Capt. Peter Lynch, of Cleveland, who is well known throughout the entire chain of lakes, is at the head of a movement among sailors that is worthy of the support of the entire merchant marine of the country. The Veteran Seamen's Association has just secured an Ohio State charter and is prepared, after almost a year of preliminary arrangements, with a membership of half a hundred in Cleveland, to undertake the work of securing through congress the establishment of a home for aged and infirm seamen. It is proposed to begin agitation of the subject by the formation of branches of this organization in different parts of the country, admitting to membership men who have sailed under the United States flag for at least five years and who are citizens and residents of the country. The aim will be to have the association and all its branches stand aloof from all local questions, especially anything pertaining to wages, keeping in view the main object for which the organization is formed. It will be argued in support of this proposed government home, that the Sailors' Snug Harbor, of Staten island, and similar institutions are private in their affairs and that the establishment and maintenance by the general government of a refuge of the kind desired is simply the fulfillment of a duty which the United States owes to the men of its merchant marine. In further support of this claim, attention will be called to the marine hospital fund, which is supposed to be very large, and a portion of which will be sought in aid of the new project. The men who contributed to this fund in past years, before the repeal of the regular monthly assessment that was levied upon all sailors previous to 1886, are gradually dropping out of service and their places are being taken to a large extent by a foreign born element now aboard our merchant ships, who receive all of the benefits of the marine hospital service. This new army of sailors might now be called upon, it is argued, to give up, if necessary, a similar small share of their earnings toward the support of their predecessors who have built up a grand hospital service for their welfare.

On the Way to Yucatan.

The Frontier Iron Works, of Detroit, builders of the machinery, and Wheeler & Co., of West Bay City, builders of the hull of the steel steamer Mackinaw, may expect to gain fame in foreign parts through the movements of the boat which they sent down the St. Lawrence to the Atlantic. The Mackinaw's engines recently averaged 85.9 turns a minute for 24 hours with the boat drawing 23 feet. She is now enroute to Yucatan for a load of hemp.

Sault and Suez Canal Traffic.

A recent number of Industries, one of the leading trade publications of London, gives a return, year by year, of the tonnage passing through the Suez canal from its opening in 1869 to the year 1890 inclusive, and we have taken advantage of the statement to make the following comparison for a similar period of years with the tonnage passing through the Sault Ste. Marie canal, the great waterway connecting Lake Superior with the lower lakes :

SUEZ CANAL.			SAULT CANAL.		
Year.	No. of Vessels.	Net Tonnage.	Year.	No. of Vessels.	Net Tonnage.
1869	10	6,576	1869	1,338	523,885
1870	486	436,609	1870	1,828	690,826
1871	765	761,467	1871	1,637	722,101
1872	1,082	1,160,743	1872	2,004	914,735
1873	1,173	1,367,767	1873	2,517	1,204,446
1874	1,264	1,631,650	1874	1,734	1,070,857
1875	1,494	2,009,984	1875	2,033	1,259,534
1876	1,457	2,096,771	1876	2,417	1,541,676
1877	1,663	2,355,447	1877	2,451	1,439,216
1878	1,593	2,269,678	1878	2,587	1,667,136
1879	1,477	2,263,332	1879	3,121	1,677,071
1880	2,026	3,057,421	1880	3,503	1,734,890
1881	2,727	4,136,779	1881	4,004	*1,567,741
1882	3,198	5,074,808	1882	4,774	*2,029,521
1883	3,307	5,775,861	1883	4,315	*2,267,105
1884	3,284	5,871,500	1884	5,689	*2,874,557
1885	3,624	6,335,752	1885	5,380	*3,256,628
1886	3,100	5,767,655	1886	7,424	*4,527,759
1887	3,137	5,903,024	1887	9,355	4,897,598
1888	3,440	6,640,834	1888	7,803	5,130,659
1889	3,425	6,783,187	1889	9,579	7,221,935
1890	3,389	6,890,014	1890	10,557	8,454,435

* Actual freight tonnage.

The figures in the above table are taken from official records in both cases. The great gain in traffic made by the Sault during 1889 and 1890 is a fair indication of the wonderful growth of lake commerce, and the showing is especially favorable to the lake waterway when it is considered that the Sault canal was open to navigation for only 234 days in 1889 and 228 days in 1890 as against free navigation at all times in the Suez.

Transfers of Vessel Property.

J. H. Gillett, of Marquette, has sold the tug James Fisk to the Smith-Fee Company, of Duluth, for \$9,000, and has about concluded the sale of another tug, the F. W. Gillett, also to Duluth parties. He is now engaged in an effort to purchase in Cleveland two larger tugs for service at Marquette. Other transfers of vessels reported recently are: Schooner Riverside, P. F. Thrall and Omer L. Harder, of Milwaukee, to Frederick Hurlbut, of Green Bay, \$4,000; schooner Morning Star, Walter S. Johnson to Charles Ellis, of Milwaukee, \$2,750; schooner Elgin, Frank Boden to Josiah Greenwood, of Chicago, \$7,000; propeller City of Green Bay, M. C. Hayes to Daniel H. Tolman, of Chicago, consideration nominal; propeller City of Marquette, one-third interest, Charles W. Endres to Emil G. and Richard F. Endres, of Whitefish Point, Mich., consideration nominal; tug Volunteer, of Ludington, to Capt. G. Muntinga, of Sheboygan, Wis., \$1,800; steamer A. Wehrle, Jr., A. Wehrle, Jr. to Cedar Point Navigation Company, of Sandusky, \$36,000; schooner Lady Macdonald, Capt. Hargraves to Capt. Ewart, of Coburg, Ont., \$4,250; propeller C. Hickox, Muskegon parties to C. Foster Lumber Company, of Milwaukee, private terms.

Affairs in Admiralty.

AN INTERESTING LAKE CASE.

On Sept. 1, 1889, the steamer R. A. Packer, of the Lehigh Valley Line, took fire when on Lake Michigan about thirty miles from the Straits. The R. P. Fitzgerald and H. E. Packer, of the same line, went to her assistance and in about one hour succeeded in subduing the fire. The injury to the burned steamer was such that she could not use her machinery and the H. E. Packer towed her with her cargo to Port Huron, as the nearest port of repair. The R. P. Fitzgerald and H. E. Packer each claimed \$1,000 for services in putting out the fire, and the H. E. Packer \$1,000 for towing the burned steamer to Port Huron. The damage to the hull and machinery was adjusted by arbitrators, mutually chosen, at the sum of \$5,244.94. The salvage claims,

\$3,000, were adjusted as general average claims, the underwriters of the cargo policies paying their proportions and the R. A. Packer's proportion. About \$2,000 was made a claim with the amount of damage to hull and machinery against the Liverpool, London and Globe Insurance Company, under its fire policy upon the steamer. The insurance company refused to pay the general average claim, and suit was brought by the Lehigh Valley Line in the United States circuit court at Detroit. The case was tried before Judge Severens and a jury on Wednesday and Thursday, April 15 and 16. The court held that the salvage services of the Fitzgerald and H. E. Packer in putting out the fire could not be recovered, under the fire policy; that the insurance company was liable only for the damage to hull and machinery, and for the steamer's proportion of a reasonable charge for towing to the nearest port of repair. The last item was submitted to the jury which was instructed to and did, after finding the amount, adjust the same on the principle of general average among all the interests receiving the benefit of the towage, the share of the burned steamer being \$535.85, which with the damage to hull and machinery, made the verdict \$6,147.94. Moore & Canfield were the attorneys for the Lehigh Valley Transportation Company and H. C. Wisner was attorney for the Liverpool, London and Globe Insurance Company.

In the district court E. D., North Carolina, it was stated that in case of a collision between vessels, one of which has been guilty of a clear fault, there must also be clear evidence of contributing fault on the part of the other to divide damages. The case was that of a schooner colliding with the yacht Nydia in Neuse river. The yacht was lying at anchor in the channel and it was shown that she displayed no lights at the time, and there was no watch on deck. There were three men on the deck of the schooner. The libellant claimed the schooner should have seen the yacht early enough to have avoided her, but it was decided the yacht was responsible for the damages and that the schooner was without fault. The libel of the owner of the Nydia was dismissed with costs and the owners of the schooner were given judgment for \$100 and costs.

In district court, D. New Jersey, it was decided that admiralty jurisdiction of the federal courts extended to a libel in personam for an injury to a vessel resulting from negligence in the management of a draw bridge over navigable tide-waters of the United States. The freeholders or board of commissioners of the county were made respondents in the case of a propeller being damaged by the careless swinging of a bridge. They moved to have the libel dismissed upon the question of jurisdiction. But the above decision decreed differently.

The Ohio-Siberia-Mather Case.

EDITOR MARINE REVIEW: I have just finished reading Mr. Wisner's article in the issue of the REVIEW of April 9. I do not care to enter upon a discussion of the question of "suction or no suction," but I feel that upon this question Mr. Wisner is in the position of the jurymen, who denounced the other eleven as a pack of fools for not agreeing with him as to the decision to be rendered by the jury. I desire, however, to say that as the proctor of the Ohio, I was in a position to know whether there was a combination between the Ohio and Siberia or not, and I now say, as I said in court, that there was no such combination or agreement of any kind between the Ohio and the Siberia, but on the contrary, every effort was made to place the fault of the collision upon both the Siberia and the Mather.

Mr. Wisner doubtless inferred from the fact that the Siberia people charged no fault against the Ohio, that therefore there must have been some combination. But the truth is that with the exception of the proctors for the Mather and Judge Hammond, not three persons could be found on or around the lakes that would say that the Ohio was in any way at fault for the collision. The difficulty in all cases of this kind, is that the average judge is only familiar with "paper navigation," and a rule of navigation to him is like a rule in mathematics, to be followed to the letter or no correct result can be obtained. And to him even the most technical violation of a rule must necessarily bring about disaster.

It certainly did surprise the masters who were present at the trial of the Ohio case that with no other testimony than a lawyer's and a book against him, a judge should find one of the best navigators on the lakes guilty of the violation of a well known rule of navigation. It would, indeed, be strange if they did not think that the Ohio could be better navigated by her master than by the court, and that the master's judgment exercised on the pilot house on the spot and at the time is more reliable and trustworthy than the judge's judgment while in a chair in a court house nine months after

C. E. KREMER.

Iron Mining.

VALUE OF LEADING STOCKS.

Quoted by Chas. H. Potter & Co., No. 104 Superior St.

Stocks.	Par Value.	Bid.	Asked.
Cleveland Iron Mining Company.....	\$ 25 00	\$ 15 00	\$ 16 00
Champion Iron Company.....	25 00	90 00	100 00
Chandler Iron Company.....	25 00	39 00	40 00
Chicago and Minnesota Ore Company.....	100 00	110 00
Iron Cliffs Iron Company.....	50 00	120 00
Jackson Iron Company.....	25 00	90 00	100 00
Lake Superior Iron Company.....	25 00	65 00	68 00
Minnesota Iron Company.....	100 00	68 00	70 00
Pittsburg Lake Angeline Iron Co.....	25 00	145 00	150 00
Republic Iron Company.....	25 00	26 50	28 50
Michigamme.....	25 00	8 50	10 00

The very poor outlook in the market for iron ore leaves the stock market in a very dull and weak state. Prices are no lower than they have been for a few weeks but the feeling is, if any, more depressed, on account of the heavy stocks of ore in sight and the absence of any conditions that would warrant purchases of the coming season's product. There are no dividends to report and little hope of any for a long time to come, excepting the few that were decided upon at the close of last year's business when the larger companies had some surplus money. The reorganization of the different interests involved in the Schlesinger trouble is not yet complete and agencies are not entirely settled. M. A. Hanna & Co. will, of course, handle the product of the Chapin mine and have general supervision of its affairs, and the boats of the Menominee Transit Company will carry, practically, all of the ore for which they were intended. Tod, Stambaugh & Co. will again have the agency of the Florence-Iron River mines, and it is probable that the product of the mines which Mr. Schlesinger still controls will be looked after by Corrigan, Ives & Co., the new concern which succeeds Dalliba, Corrigan & Co., and in which Mr. H. P. Lillibridge is interested. The Negaunee group of the Schlesinger mines, the Queen, Buffalo, South Buffalo and Prince of Wales, have been consolidated for the purpose of facilitating their management. Mr. Cole, who has been connected with the Schlesinger interests, becomes general manager of the Negaunee mines, as well as the Dunn and others of the Menominee and Gogebic range.

The officers of the Brotherton Iron Mining Company, Gogebic range, have given out for publication the statement of the directors for 1890. It would be more interesting to read some of the reports of the big mining companies of the Lake Superior district but it is not probable that they will follow the example of the Brotherton. The Brotherton, with three shafts, produced 92,985 tons of ore during the year. There were 517 tons of ore on hand at the mine, Jan. 1, 1890, and 80,487 tons were shipped during the year. On Jan. 1, 1891, there were 13,015 tons of ore at the mine and 28,787 tons, unsold, at Cleveland, Ohio. Of the ore shipped, 63,788 tons went to Cleveland, 15,002 tons to the Illinois Steel Company, and 1,697 to the Chicago Furnace Company. On the ore which went to Cleveland the company paid lake freight of \$1.16 per ton and railway freight of 70 cents; total, \$1.86. The total cost of mining was \$156,713.94, of which \$10,071.38 was for additions to equipment. The balance of expenditures was divided as follows: Supplies, \$5,901.78; expense, \$4,613.12; general mining, \$93,332.74; explosives, \$2,592.25; fuel, \$13,564.79; timbering, \$21,921.05; taxes, \$4,716.83. The average cost of mining was \$1.577 per ton of ore. The company employed an average of 183 men, twenty-two on the surface, and 161 under ground. The company paid royalty on the various sales of ore, according to price received, as follows: Ore shipped to Illinois Steel Company, \$.334; Chicago Furnace Company, \$.368; Jefferson Iron Works, \$.48; Junction Iron Company, \$.48; ore shipped to Cleveland and unsold, \$.413. According to the treasurer's report the financial condition of the company was as follows: Receipts.—Cash balance, Jan. 1, 1890, \$3,308.18; from sales agents, 1890, \$183,923.58. Disbursements.—Royalty, \$32,239.39; interest, exchange and attorney's fees, \$372.90; Mining expenses, \$153,728.71; cash balance, \$890.76. The mine is now in shape, according to the superintendent, to make an output of 150,000 tons of ore per annum.

Reports from Ishpeming are to the effect that the Lake Superior Company's stock pile space, although largely increased

during the winter, is about filled and little more can be done until the ore begins to move. At the Pittsburgh & Lake Angeline favorable results are expected from the deposit struck at the east end of the lake. According to Iron Ore, the local paper, the miners were into the ore a distance of fifteen feet three inches at the close of last week and there is every indication that a good mine will be developed. The ore is a dark blue, gives 65.50 in metallic iron and .014 in phosphorus, a most desirable product.

Several hundred feet east of the new find the company has been conducting exploring work for two years past, and has found ore, and mined a neat product. There is now in stock at this place about 10,000 tons, the ore being of highest grade. The location is considerably elevated above that of the point where the recent discovery has been made and the ore appears to be following the course of the diorite around the lake shore. There will probably be another shaft sunk to the southwest of this eastern point the coming summer if the new ore body proves to be large. At the Michigamme mines the pumps have been hoisted and all men discharged on account of the poor outlook in the ore market, but the concentrating works at this mine, which have attracted widespread attention will be continued, as there is plenty of material in the waste dumps that has accumulated during a great many years past.

The ore trains have begun to move into Two Harbors, four a day. The docks have a capacity for 40,000 tons, or about 100 trains. The Vermillion Iron Journal says that at the close of work last Saturday the Minnesota mine had 203,662 tons of ore in stock, over 80,000 tons of which is the product of No. 5 shaft, at present the most productive portion of the mine. This was about the amount in stock at the commencement of shipping a year ago, but as the company that year carried over a small quantity from the previous season, the output for the past winter has been larger than that of 1889-90. The stock piles of the Chandler mine contain 134,170 tons and the daily output is about 1,000 tons.

The East New York Iron Company decided at a recent meeting in Milwaukee to operate the mine under the laws of Michigan, instead of Wisconsin, the laws of the latter state not being as favorable to the mining industry. The offices of the company will probably be removed from Milwaukee to Ishpeming, as Mr. C. R. Ely, secretary of the company, resides in Ishpeming and a large portion of the stock is held in Marquette county, Mich. The stock pile of the mine now aggregates about 14,000 tons and is increasing at the rate of about 150 tons a day.

Operations at the mines of the Penn Iron Company, the Vulcans, have been especially active, the stock piles aggregating 75,000 tons on April 1. The product of these mines is consumed by the Cambria Iron Works, of Johnstown, Pa., and will in all probability be as large as usual this year. The ore is carried by the big steel boats controlled in the office of M. A. Hanna & Co., Cleveland.

There will undoubtedly be some movement of ore from Huron bay, above Marquette, this season. Work on the railway from Champion to the bay, which was begun last fall, is progressing favorably and the new docks are well under way. It is said that the railway company has already made offers of reduced charges to some of the mines.

A bill making the specific tax on iron ore produced in Minnesota 3 cents a ton, instead of 1 cent as at present, has passed the upper house of the Minnesota legislature and stands a fair chance of becoming a law. It's another case of farmers looking upon the mine owners as enemies.

All the stock pile room at the Grand Rapids mine, Negaunee, has been taken up and the mining force reduced accordingly. Mr. W. Davis, mine agent of the company, says some of its ore will be carried over if a good price cannot be secured for it.

Commander C. E. Clark, of Chicago, gives notice that the spar buoy marking the entrance to St. Joseph river, Mich., will be painted black and placed on the north side of the channel at the end of the shoal ground making out from the north pier. At present but 13½ feet of water can be carried. Bearings (true) St. Joseph main light-house S. E. ½ E., distant ⅔ of a mile; St. Joseph pier-head light-house E. ⅛ N., 360 yards.

Duluth and Port Arthur Wheat.

Special Correspondence to the MARINE REVIEW.

DULUTH, Minn., April 23.—One big boat, the Western Reserve, got 3 cents on wheat from Port Arthur, but immediately upon the transaction being closed more tonnage was offered at $2\frac{3}{4}$ cents, and it was not taken. The freight situation is now dull and the tendency is toward weakness. Capacity for about 2,500,000 bushels is chartered to arrive at Duluth, the great bulk of it having been taken at $2\frac{1}{2}$ cents. Only a few boats chartered early got $2\frac{3}{4}$ cents.

Wheat is slowly accumulating. The receipts last week were 304,000 bushels and over 100,000 bushels were in cars on track, Monday morning. The increase of stocks for the week was 262,000 bushels. The total here now is 5,078,000 bushels, against 6,146,000 bushels a year ago. There is also in store 67,000 bushels of flax seed. The flour on hand in mill and railroad warehouses amounts to about 215,000 barrels, considerably more than there was here last year.

J. W. Coria, the Wisconsin Central's general agent at Ashland, expresses the opinion that the bay will open about May 1. There have been many warm days of late and the ice must be rotted a good deal. The ferry Duluth succeeded, Thursday, in cutting a channel through to West Superior and the ferries are now running. In Duluth harbor tugs move freely.

Capt. McDougall expects to launch two of the whalebacks on Saturday, the 25th inst.

It should be remembered by boats coming up for West Superior that the channel between Duluth and that place is now deep enough to allow free passage with loads, without the heretofore long trip around the outside of Minnesota point, and that the best way to reach West Superior or Connor's point will be by way of the Duluth canal and this new channel.

West Bay City Affairs.

Special Correspondence to the MARINE REVIEW.

WEST BAY CITY, Mich., April 23.—Owing to poor tugging a year ago when Wheeler & Co. launched the Olive Jeannette, the vessel went across the river and knocked down a lot of lumber piles and several rods of dock and tramway, which cost Wheeler & Co. several hundred dollars for repairs. Superintendent Williams determined that such an accident should not happen with the City of Chicago when she was launched last Thursday, and to prevent it huge oak timbers were tied alongside the vessel, six on a side, and each separated from the other by about fifteen feet of rope. As the vessel struck the water she began to pull on the first one and before the last one on each side had moved its length the vessel had been brought to a standstill.

Wheeler & Co. have a contract for a small steel steamer for use in the coasting trade on the Gulf of Mexico. Mr. Wheeler refuses to say anything about the vessel, either as to ownership or dimensions, and will neither affirm nor deny the report of the contract having been obtained, but from other sources the report is confirmed.

The first vessels loaded from this port take lumber to Ohio ports at \$1.50 and to Tonawanda for \$1.75.

The Araxes, which lay sunk near the Bay City dry dock was raised and towed up the river a short distance, where she sank again. Work will again be resumed on her in a few days, after which she will go in dry dock for repairs.

Spicy Kingston Shipping News.

Special Correspondence to the MARINE REVIEW.

KINGSTON, Ontario, April, 23.—Kingston lost considerable shipping during the past year. It gave a bonus of \$75,000 to a railway to make its terminus here. It did so and the same time connected with the K. & P. railway and the result is that all timber that came here for shipment is now carried to Deseronto, where resides the owner of the road that received the bonus, and from which place timber is shipped to the United States. This was a case of paying money to secure an injury.

John Dodds, chief engineer for the Montreal Transportation Company, has been appointed inspector of marine boilers. Inspector Adams of this city will be removed to Toronto to take the place of Inspector St. John, who resigned to take a lucrative situation in Nova Scotia. This was supposed to be a western appointment. However, Dodds is a good man.

The Oswego Seamen's Union having fixed the wages at \$1.50 for schooners and \$1.25 for barges, the probabilities are this scale will be adopted by sailors here, the sailors at this port not having formed a branch union.

Recently Deputy United States Marshal Mattoon of Oswego, went to Ogdensburg and libeled the schooner Reuben Dowd on a claim for towing in the St. Lawrence river. Inside of twenty-four hours the claim was settled and the schooner released.

The mail steamers will not be running before June 18. This will give them a short season and short wages, as the hands and officers are paid by the month.

No grain has as yet arrived from the west for transshipment, but some

is expected about May 1. Some say that when it does commence the season will not be so very dull after all. The tugs and vessels of the two forwarding companies are ready and waiting for business. The Montreal Transportation Company has had all its river steamers painted black, making them look like piratical crafts. Last year they were white, but the coal tar which empties into the harbor played sad havoc with them before the season had commenced.

It was thought that the quarry on Grindstone island, from which large quantities of stone are carried to Chicago and Cleveland, would close down this summer for lack of orders. Suddenly contracts poured in to such an extent that there are enough on hand to keep the quarry going well into the fall.

No reply has as yet been received from the government by the Montreal corn exchange, therefore it looks as if the powers will adhere to the new edict to the effect that grain stored at Ogdensburg will not receive the refund of canal tolls.

Here are some boats and their captains for this season: Propellers—Ocean, Capt. T. Towers; Persia, Capt. John H. Scott; Alma Munro, Capt. Thomas Brown; Cuba, Capt. J. H. Hume; Acadia, Capt. A. Malcomson; Lake Michigan, Capt. Paul Clifford; Celtic, Capt. Oliver Patenand; Chicora, Capt. W. H. Loames.

W. Bloomfield is captain of the steamer Hero, which started up the bay on Friday, with G. Johnson as mate and J. Hickey as engineer. The steamer Glengarry has received a new bow and been overhauled. She will be launched this week. The color of her hull is gosling green, a favorite shade with her master, Capt. J. McMaugh. The steamer Armenia left for Toledo with the Dunn and Denmark in tow for timber. A large sum was spent in improving the Dunn. Capt. Dix thinks she is the brightest craft on the lakes.

The St. Clair Tunnel.

Special Correspondence to the MARINE REVIEW.

PORT HURON, Mich., April 23.—The tunnel officials have still in view the big celebration planned some time ago for the formal opening, when the dignitaries of Canada and the United States are expected to be present. One of the big locomotives, built especially for tunnel service, is now on the ground. The Baldwin Locomotive Works is engaged in constructing four of these locomotives, which are necessarily large on account of the grade of 105 feet to the mile. They weigh 195,000 pounds each and are probably the largest ever built in America. They are known as tank locomotives and have no tender. The tanks are on both sides of the boiler, and their capacity is 2,000 gallons. The space for the fuel, which is anthracite coal, is on the foot-board. There are five pairs of driving wheels, which are the only wheels, and they are 50 inches in diameter. The wheel base is 18 feet 3 inches. The cylinders are 22 inches in diameter and have a stroke of 28 inches. The boiler is of steel, $\frac{3}{8}$ of an inch thick and is 6 feet 2 inches in diameter. The cab is placed on top of the boiler and midway between the two ends. There is a powerful air brake which operates on each driving wheel. The locomotive will run on 100-pound rails.

Fearing an Insurance Cut.

Special Correspondence to the MARINE REVIEW.

BUFFALO, N. Y., April 23.—A number of general agents had a quiet conference last Monday on the hull tariff. Applications for policies have been coming in too slowly to suit some of these agents who work on big commissions. Vessel owners who don't intend to start out until May 15 are not yet anxious to contract for insurance. They can afford to await developments. A rumor had got around that some vessel had been placed at a cut rate. It could not be traced to anything definite, yet it worried several of the agents greatly. They couldn't understand why owners were holding off, unless it was for the possibility of getting lower rates than the schedule. Of course everybody said he was going to maintain rates, but it readily may be inferred that, under present conditions, some agent very anxious to get business—and commissions—might make it an object, quietly, for owners to patronize his companies. This thing will bear watching.

So far only one grain and ore tow has left port. No vessels controlled by parties who signed the May 15 agreement have made a start, and there are no indications that any will go before the time is up. Why should they, when there is no prospect of getting grain or ore cargoes?

There is little coal here for shipment. Should there be a rush of the small down-bound grain fleet, some of them would have to seek up loads elsewhere. Most of the coal shippers are not yet in shape to move stock freely. The prevailing rates are 60 cents to Chicago, Racine and Kenosha, 50 cents Milwaukee and 40 cents to Toledo, Gladstone, Duluth and Superior.

A traffic arrangement has been made under which the steel steamer E. P. Weed will run in the Northern Line this season. She has gangways and hoisting machinery, and is well adapted for package freight trade. The Weed left here last Monday for Superior, but was to stop at Detroit

a few days to have some work done on her machinery. The first of the Northern liners will start next Monday.

Manager Bullard, of the Union Steamboat Company, has secured the contract to carry east the copper output of the Calumet and Hecla mine. The Nyack, which will ply as last season in the passenger trade, will bring down some of this copper. If Mr. Bullard can not make a deal with some Lake Superior line, he may put a couple of his old Chicago liners in to get the stuff down. From Buffalo the copper will go east over the Erie road. This copper traffic a few years ago was a plum much sought after by the Lake Superior steamboat managers. It paid a high freight rate. It is worth having yet, and several lines wanted it badly to help things out. Even Capt. Eber Ward, who was pushed out of the Lake Superior line which he had built up, was figuring on it for a new line which he is trying to form. He has secured the Saginaw Valley and Toledo, and intends to get another steamer. Although well along in years, Capt. Ward has ability and pluck, and his many friends will wish him success. He will call the new fleet Eber Ward's Lake Superior Line.

To Dynamite the Schooner Charger.

Special Correspondence to the MARINE REVIEW.

AMHERSTBURG, April 23.—Capt. F. B. Hackett, of the tug International, with Diver Thomas Grady, of Windsor, on board, left here Wednesday, for Point au Pelee passage, where they will dynamite the schooner Charger, sunk there last fall.

Capt. Andrew Hackett has placed the spar buoys at Bar point. He found the water on Saturday a foot lower than last year. There is 13 feet 10 inches at the Bar point light-ship. He advises masters of deep laden vessels to keep the black spars well aboard in passing.

Masters and Engineers.

Western Transit Company, Buffalo, N. Y.: Steamers—Albany, Capt. A. J. McDonald, M. J. Laney, engineer; Arabia, Capt. Patrick Shea, Patrick Welch, engineer; Badger State, Capt. I. H. Smith, J. W. Brooks, engineer; Boston, Capt. Donald Gillies, S. B. Muirhead, engineer; Buffalo, Capt. Dugald Buie, W. McNulty, engineer; Chicago, Capt. F. J. McCabe, Frank Miller, engineer; Cammodore, Capt. R. D. Gardner, Moses Trouton, engineer; Empire State, Capt. Lawrence Green, L. G. Gebhard, engineer; Fountain City, Capt. G. W. Brice, Thomas Corrigan, engineer; Harlem, Capt. Frederick Williams, J. N. Gregory, engineer; Hudson, Capt. Valentine Jones, Henry Hess, engineer; Idaho, Capt. S. Chatterton, James Anderson, engineer; Milwaukee, Capt. James Carlisle, H. M. King, engineer; Montana, Capt. Alvah Shaver, William Tibby, engineer; Syracuse, Capt. J. H. Dissett, G. W. Phillippe, engineer; Vanderbilt, Capt. Robert Murray, F. W. Hale, engineer.

Elsey & King, Detroit, Mich.: Tugs—Balize, Capt. J. M. Johnson, Irwin Morrison, engineer; Gladiator, Capt. Robert E. Ferguson, Edward M. Tilley, engineer; Charlton, Capt. Hugh J. Hagan, Thomas Craig, engineer; Onaping, Capt. John E. Tobin, I. C. Watson, engineer.

Escanaba Towing and Wrecking Company, Escanaba, Mich.: Tugs—Monarch, Capt. Bartley; Delta, Capt. Casper Bartley; Owen, Capt. Lindquist. Engineers are the same as last year.

Official Numbers and Tonnage.

The following numbers were assigned lake vessels by the Bureau of Navigation, W. W. Bates, commissioner, during the week ending April 18: Steam—City of Berlin, Port Huron, tonnage, gross 2,051.11, net 1,711.00, No. 126,717; E. M. B. A., Chicago, tonnage, gross 44.37, net 22.19, No. 136,186; Iosco, Chicago, tonnage, gross 2,051.82, net 1,706.83, No. 100,484; Walton B., Duluth, tonnage, gross 32.45, net 16.23, No. 81,323.

The Marine Engineers.

National President Galwey, of Detroit, is still conducting the affairs of the marine engineers in Cleveland who refuse to accept reduced wages. E. W. Tucker, of San Francisco, national vice-president of the association, was in the city during the week. There is little change in the situation, both vessel owners and engineers refusing to relinquish the positions taken by them at the outset.

Probably the Last Season of Private Lights.

Notwithstanding the unfavorable outlook in the lake trade, the private lights on the Canadian side of the Detroit river below the city of Detroit and at Point Edward must be maintained, and Captain McKay, of the Cleveland Vessel Owners' Association, who has undertaken the work of securing an assurance from vessel owners that the keepers will be paid, has been fairly successful so far. All but a few of the Cleveland owners of steamboats have signified a willingness to bear their portion of

the expense and with the assistance of similar missionary work on the part of C. H. Keep, of Buffalo, and Capt. Eber Ward, of Detroit, Capt. McKay hopes to tide over another year, or a portion of it at least, until such time as the Canadian government officials can see their way clear to take this burden off the hands of the vessel owners.

There is now some hope of the Canadian government taking these lights. Mr. Keep's advices to Capt. McKay are to the effect that the deputy minister of marine at Ottawa has asked for information regarding the ownership of the towers, cost of maintenance, etc., all of which would indicate that the department is considering the question.

The Freight Situation.

The feeling among iron ore interests is even worse than it has been for several weeks past, on account of the heavy stocks on dock and evidence at hand to the effect that the consumption of ore brought to Lake Erie docks has not exceeded 5,000,000 tons within the past twelve months. It seems settled beyond all doubt that there will be no more than 6,000,000 tons of ore shipped by lake this season, and the boats controlled in the offices of iron mining companies, or having connections with such offices that will secure work for them, are capable of carrying more than 50 per cent. of this output. Nothing has been done toward reducing handling charges at Lake Erie ports and there is no organized effort to reduce the cost of trimming. These matters have simply been talked about. Coal is plentiful at the opening rates but there is no telling how long the movement will last after the opening of navigation. Boats chartered for Duluth grain will move as soon as favorable advices are received from the Sault, but there are no indications of anything being done in the ore trade before May 15.

How to Mark Names.

The MARINE REVIEW has had several requests of late for information regarding the law passed by the last congress providing for the marking of vessels' names. The law must be complied with within the present year. Names of steam vessels according to the new rules must appear upon each bow as well as the pilot house and the stern, and the names of sail vessels must appear upon each bow and the stern. The home port must also appear upon the stern in all cases. The law says that "the name shall be painted, or carved or gilded, in Roman letters in a light color on a dark ground, or in a dark color on a light ground, and to be distinctly visible. The smallest letters used shall not be less in size than four inches." The penalty is \$10 for each name omitted. Raised letters may, of course, be used, as they would be considered the same as carved letters, and one of the objects of the passage of this law was that under the old law vessel owners were not at liberty to consult their taste in marking their vessels' names. Many of them desired to put on carved letters but were prevented by the old law, which provided for painting the name on the stern. The steamboat law permits of the name on the pilot house being carved, or ornamented. All vessels will now have the same privilege with regard to names on the bows and stern, keeping in view, however, the foregoing provisions as to style, size and color.

Hardly Complete Without it.

It has been said that plans were being made to present at the World's Columbian Exhibition, in connection with the display of the engineer corps of the army, a working model of the Sault Ste. Marie canal. This will probably be done although there is nothing definite as yet regarding it. Major H. M. Adams, corps of engineers, in charge says: "The nature of the exhibit by the corps of engineers, United States army, at the World's Columbian Exposition has not yet been determined, nor can it be until it is known what funds will be available for such exhibit. It could hardly be complete without reference to the Sault Ste. Marie canal."

MARINE REVIEW.

DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

JOHN M. MULROONEY, } PROPRIETORS.
F. M. BARTON, }

Published every Thursday at No. 510 Perry-Payne Building, Cleveland, O.
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St. Mary's Falls and Suez canal traffic: Number of boats through St. Mary's Falls canal in 1890, 234 days of navigation, 10,557; tonnage, net registered, 8,454,435. Number of boats through Suez canal during 1890, full year, 3,389; tonnage, net registered, 6,890,014.

Annual tonnage entries and clearances of the great seaports of the world, for 1889: New York, 11,051,236 tons; all seaports in the United States, 26,983,315 tons; Liverpool, 14,175,200 tons; London, 19,245,417 tons.

Tonnage passing through Detroit river during 234 days of navigation in 1889, amounted to 36,203,606 tons. Ten million tons more than the entries and clearances of all the seaports in the United States, and three million tons more than the combined foreign and coastwise shipping of Liverpool and London.

Entered at Cleveland Post Office as Second-class Mail Matter.

THE newspapers in lake cities that have given up their columns to matter supporting the Pennsylvania ship canal scheme are following a very unwise course. It would be a great deal better to show a united effort at this time in support of Gen. Poe's admirable report of a 20-foot channel between Duluth, Chicago and Buffalo. Schemes of Pennsylvania ship canal kind, alike to the Hennepin canal and other burdensome projects, will draw support in congress from sound and practicable measures, and it is without doubt the intention of the supporters of this unwise project to go before the next congress with a view of obtaining an appropriation on the strength of Pennsylvania influence. The Pennsylvania legislature blundered in giving attention to such a visionary matter, although it can not be said that the commission in charge of the preliminary affairs did not do its work well. It is the well arranged collection of statistics presented by this commission that is misleading, although the project is the most unfeasible that might be imagined. There can not be found one person with a practical knowledge of the increase of the size of the vessels on the lakes of late years and the relations which the railways of Ohio and Pennsylvania bear to the lake and furnace interests, who will endorse this scheme. Mr. M. A. Hanna, whose lake interests involve the direction of millions in ships, docks and mines, put the whole question in a nut shell when he asked whether the canal was to be run to the furnaces or the furnaces brought to the canal. The canal can not be so constructed as to deliver the ore to the furnaces and the handling cost is accordingly increased. The modern steel steamships of the lakes would make a half dozen Lake Michigan trips while a boat was navigating the canal.

There is certainly nothing in the story to the effect that the Reading Railway Company will ship anthracite coal to the northwest through Ashtabula. A little consideration will show its absurdity, as distance is and will be for all time to come in favor of Buffalo and against Ashtabula or any other western lake Erie port in the movement of hard coal. The Baltimore & Ohio had a losing experience with this matter of distance in its effort to build up a big ore business at Sandusky. What is true of the shortening of the water haul and the lengthening of the rail haul in delivering ore for Pennsylvania and eastern Ohio furnaces at Sandusky is also true of the anthracite coal business as between Buffalo and Ashtabula. Then, too, the New York Central already has a big investment in docks at Buffalo, and the claim is that Ashtabula was to be benefited in this regard through a close traffic arrangement between the New York Central and the Reading. The reported purchase of the Beach Creek road by the Vanderbilts may render possible a new and shorter route between Philadelphia and Chicago but it will never give Ashtabula or any other western Lake Erie port a portion of the anthracite coal business.

It is as well as settled that Judge Hammond, of Tennessee, whose decisions on the district bench created some stir in Detroit recently, will not be advanced to the new circuit court, which will after July next have final jurisdiction in admiralty cases. The circuit in which Ohio and Michigan is included will be presided over by Justice Brown, Judge Jackson, of the present circuit court, and in all probability, Solicitor General Taft, of Ohio, son of ex-Secretary Taft. The appointment from the district bench is due to Ohio, and Mr. Taft's appointment is regarded as settled. He is one of the most brilliant young men who have graduated from Yale within recent years. His college life was full of promise and soon after graduating in 1878 he took a high place among Cincinnati lawyers. The advantages of wealth and position greatly aided his own abilities, but what he got he deserved. Although only about thirty-five years old, Mr. Taft has made an excellent record in Washington.

THE cofferdam leak at the Sault has been stopped and apprehensions of a delay to navigation are at rest for the present, but there has all along been grave doubt of free navigation of the canal during the entire season to come. The MARINE REVIEW directed attention to the situation and, in connection with a clear expression of opinion from Gen. Poe regarding the danger, suggested a conference of men of lake interests with that official. There are vessel owners in Cleveland who favor such a proceeding but they are slow in acting. Who can imagine the loss that would result from a long suspension of navigation at the Sault.

American Lake Steamers.

AND FOREIGN GOING VESSELS, WITH RUDIMENTARY NOTES ON STABILITY AND CASUALTIES IN FOREIGN WATERS.

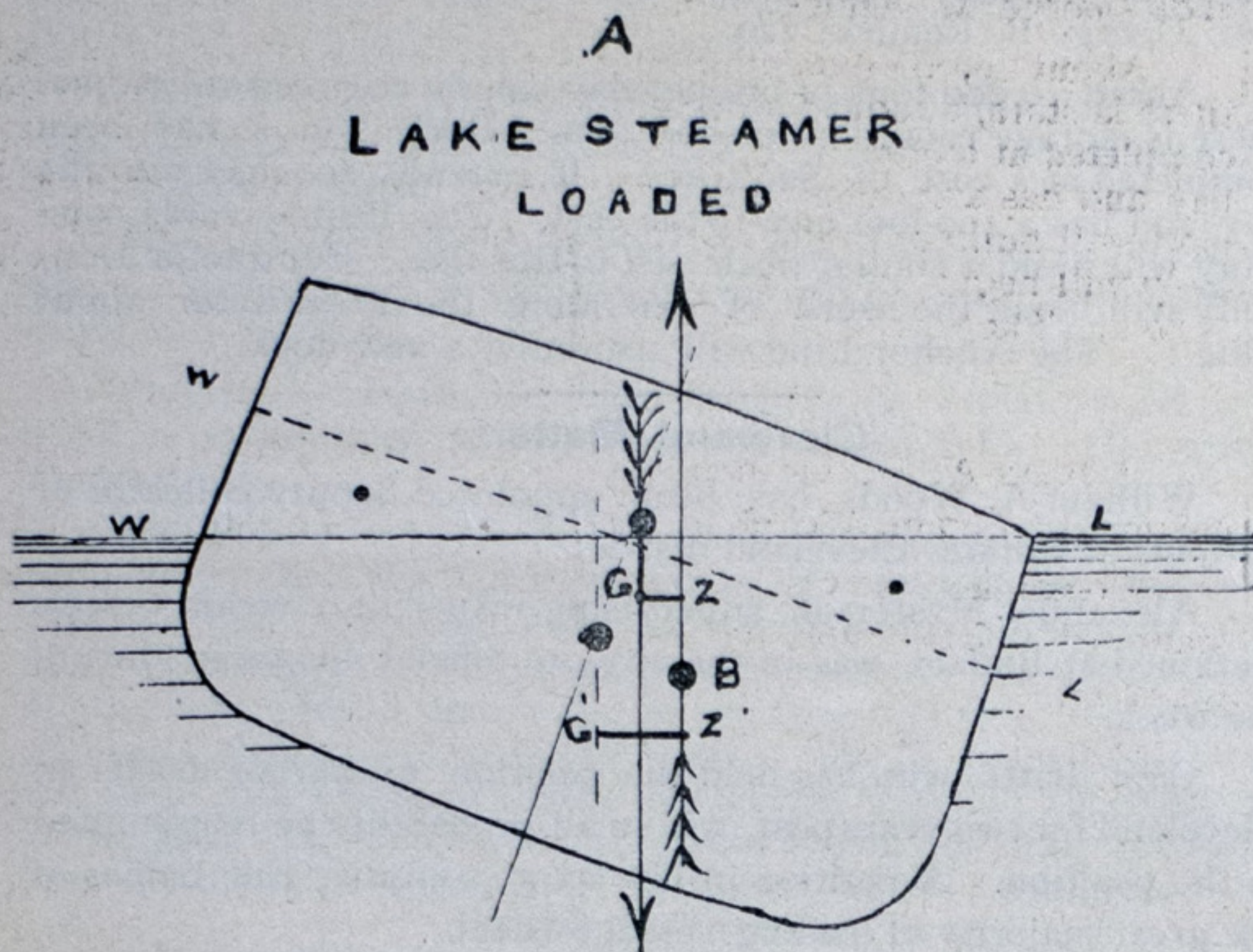
*By Joseph R. Oldham, N. A., Cleveland, O.

[CONCLUDED FROM ISSUE OF APRIL 2.]

The metacentric method of computing the stability, or instability of a ship was known in France about 150 years ago and still it is a remarkable fact that no scientific or systematic investigations into the stability of ships at large angles of inclination were practiced in Britain even so recently as twenty-five years ago, though Atwood had cleverly and clearly pointed out Bouguer's error concerning the metacentric height before the end of the last century. Not until the ill-fated steamer Captain "turned turtle" in the Bay of Biscay in 1870 and drowned some hundreds of innocent men, while the culpable designers and constructors escaped scot-free, were curves of righting or heeling forces generally calculated and delineated. Let us consider a homogenous body of the same specific gravity as the fluid in which it is immersed. In this case the center of gravity of the body will be coincident with its center of displacement. Of course, this body will float totally immersed. Its center of gravity will act downwards and its buoyancy will act upwards through its center of gravity of displacement, and the centers of these forces being at the same point there will be no leverage interfering with its equilibrium; it will there remain in any position in which it may happen to be floated. But, if a body of irregular form and weight, whose weight and displacement are the same when wholly immersed, be placed freely in still water, it will not remain at rest unless its center of gravity lies vertically under its center of displacement, or until these forces act in the same vertical line, for the center of gravity pressing downwards and the center of buoyancy acting upwards in an opposite vertical direction will cause the body to turn round until the gravity and buoyancy neutralise each other, when it must cease revolving.

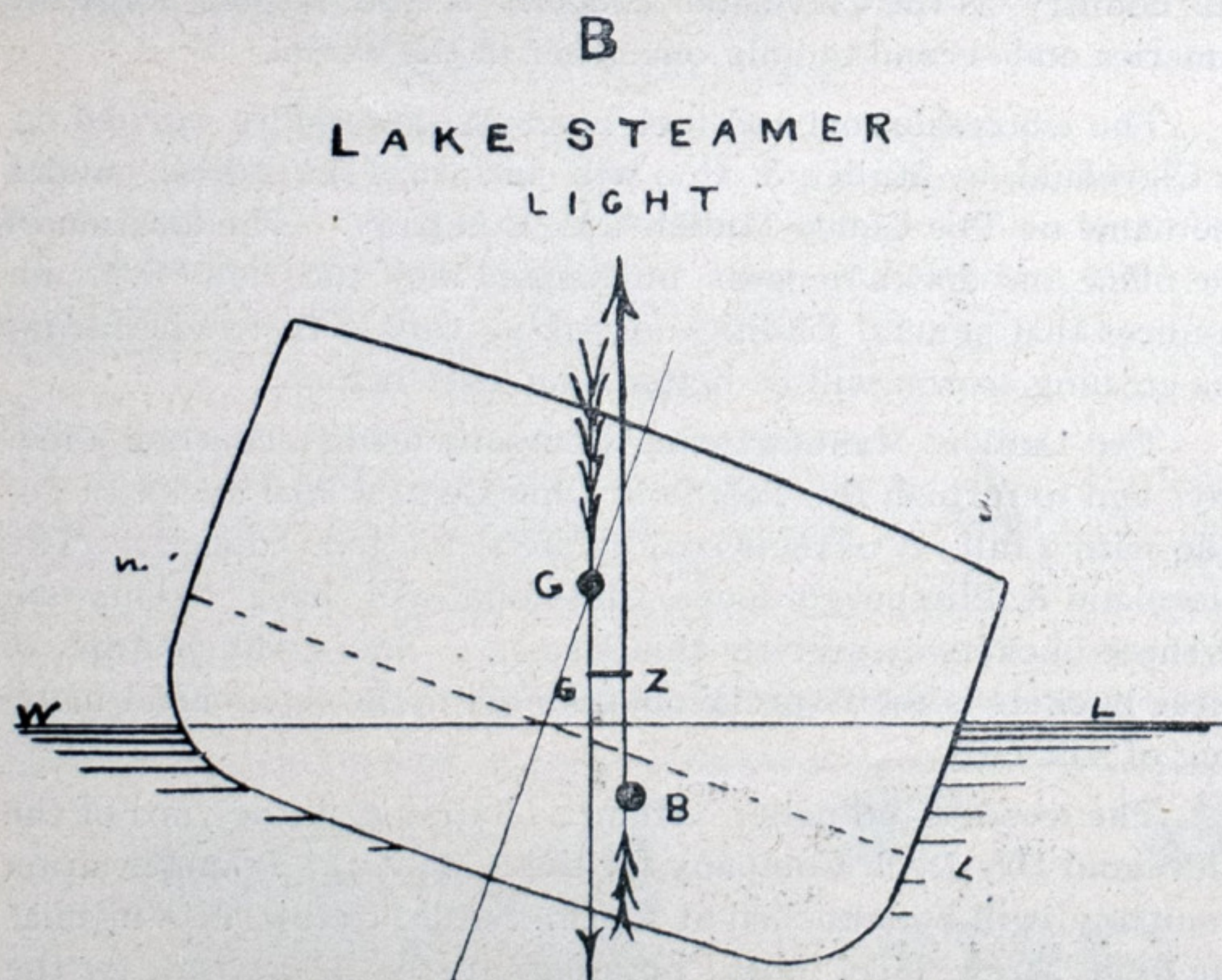
We see then that in the case of a wholly immersed body the center of gravity must be placed below the center of buoyancy to ensure stable equilibrium. But in partially immersed bodies, such as ordinary ships, the conditions of equilibrium are altogether different, for we shall see that, though the relative positions of the centers of gravity and buoyancy be reversed, stable equilibrium may still be insured; indeed, in ordinary vessels the center of gravity will usually be situated above the center of buoyancy. Now so far as this paper treats of the equilibrium of floating bodies we may hence keep in view the equipped weight of the vessel with all that is therein as acting downwards, towards the center of the earth, through the centre of gravity of the mass, and the whole buoyancy of the vessel acting upwards, or in an opposite vertical direction, through its center of buoyancy, situate at some distance below the centre of gravity. If the line of action of these two forces be the same vertical, then equilibrium will result. If the vertical lines of these opposing forces be different and apart, the distance between these two lines is the leverage with which the vessel is being forced back into the same vertical position,

or is being heeled further over, in accordance with the leverages which may cause righting or heeling moments; that is in accordance with the condition, whether the vertical through the center of gravity be inside or outside of the center of buoyancy. By outside I mean further to the right hand side of the center line in the accompanying diagrams. The metacenter M is a point fixed by the intersection of two verticals through two centers of buoyancy, lying extremely near to each other and cor-



responding to two positions of the body, which differ only by a slight angle of inclination, one being a position of equilibrium. This metacenter, or limit of centers, is a point above which the center of gravity cannot be raised without rendering the vessel unstable in the upright, or nearly upright position. The metacentric height therefore is the distance between the center of gravity G of the ship and the metacenter M.

The stiffness or crankness of a ship varies in proportion to this height. When this height is doubled the vessel may be said to be twice as stiff as she was before; if it be reduced by one-half the stiffness will be halved, and so on for other degrees of alteration. This height depends partly on the distribution of the weights comprising the ship and cargo, which fixes the height of the center of gravity, and partly on the model of the vessel below water and the shape of the load water line, which determines the height of the metacenter. Thus we see that the metacentric height is affected either by a change in the form of a vessel or by a different distribution of load therein. In our iron clad war steamers for instance, stability is attained by great breadth of beam in proportion to

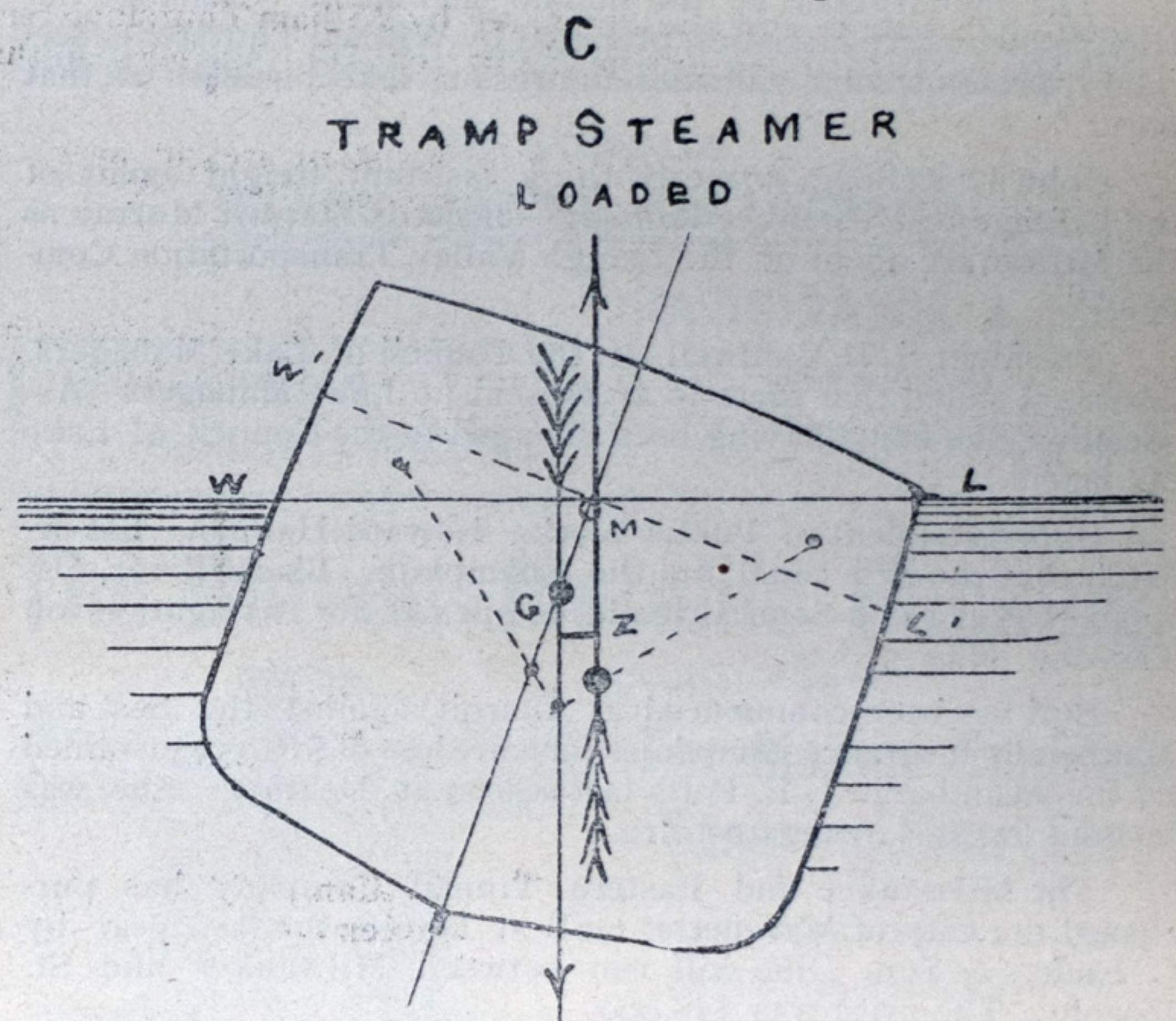


depth. This is generally called stability of form or surface stability in contra-distinction to stability of weight.

As an illustration of surface stability or stability of form, I may point to diagram A, which is a midship section of a lake steamer, 41 feet broad and 24½ feet deep. She is assumed to be loaded to 16 feet mean draft of water, which would leave 8¼ feet of freeboard. Diagram C shows a section of an actual tramp steamer, 34½ feet broad and 32 feet deep. It will be observed that the center of gravity of the lake steamer is situated just 6 inches above the main deck, which is also about 6 inches above the water

line, and when she is inclined over to an angle of 15 degrees she has a righting lever of 34 inches and a righting moment of 16,500 foot tons. Now if the cargo in the tramp steamer were stowed so as to place her center of gravity in the same relative position of height with regard to her water line, it will be seen that she would capsize before she reached such a very moderate angle of heel as 15 degrees. That being so, it may be accepted as a fact that such vessels are by no means suitable or safe for a general trade where ordinary conditions of loading obtain. Such a vessel could, however, be and actually was rendered thoroughly stable by weight in the form of 600 tons of iron being placed in her lower hold. This immediately lowered her center of gravity some six feet, and in that condition of loading she had, when inclined to 15 degrees, the same length of righting lever and a larger righting moment than the lake steamer.

Section B is an illustration of the same lake steamer without any cargo on board. In this condition her mean draft of water would be 8¼ feet and her freeboard 16 feet, which is just the converse as regards draft of water and freeboard to that illustrated by diagram A, and yet we see that at 15 degrees of inclination she has the same arm of righting lever at the same angle of heel as in her loaded condition. Thus diagram B may be taken as an illustration of what is meant by stability of form, and diagram C as stability of weight. If the thick lines marked G, Z, G' Z' be measured, it will be found that when similarly loaded the lake steamer has a righting lever of more than double the length of that due to the



tramp steamer at equal angles of heel. It is this enormous righting moment that causes our lake steamers to be so jerky and uneasy in their motions when in a heavy seaway. Such being the case, it is very desirable to carry as much iron ore as possible in the 'tween decks; indeed, many of these broad and shallow steamers would be stable if nearly all their freight of ore were carried on the main deck beams, and they would be found to be much more comfortable in a seaway when so loaded.

If it is desired to improve upon an existing type of vessel in the direction of greater stability, this may be done either by arranging to lower the centre of gravity of the cargo, or by increasing the area of the load water plane in proportion to the immersed volume; or again it may be done by increasing the freeboard to a certain extent. In other words, the metacentric height may be increased by keeping the center of gravity down, through the heaviest weights being placed in the bottom of the vessel. This is just as effectual a means of bringing about stiffness in a vessel as by resorting to great breadth of beam, and will in most cases give a larger range of stability. But this in itself is not by any means a sufficient condition of safety, for a vessel may have a range of perhaps 80 or 90 degrees and yet could be capsized by a slight force. Thus it will be seen that the information concerning stability to be derived from the metacentric method, though highly valuable, is limited, for the location of this point is not affected by the position of the center of gravity. When a very flat and full vessel having but a small metacentric height is deeply laden and becomes deficient in initial stiffness, she is liable to take a list. The bilge water gravitates into the lowest possible position, it accumulates in the bilge and has a tendency to heel the vessel over with it and thus such vessels are found at sea with one of their bilges doing duty as best it may for the keel. We know of ocean steamers to this day which cannot be kept on their legs without being ballasted like a yacht. This surely would not coincide with your views of maritime economy.

*Read before the Excelsior Marine Benevolent Association, order of lake captains.

Around the Lakes.

The boats of the Lake Superior Transit Company will stop at Superior this season.

Capt. Rooney, of the schooner Rounds, was injured at Toledo by falling on a spike.

F. J. Haynes & Son, of Port Huron, have bought the schooner A. Jackson for \$6,500. She will engage in the lumber trade.

The Menominee river will be deepened to 14 feet and the channel made 400 feet wide as far up as Stephenson's mill at Marinette.

Welland canal tugs have pooled their interests and will charge 14 and 16 cents a ton for towing this season, as against 16 and 18 cents last season.

The work of widening the St. Clair flats canal will be commenced shortly by Contractor Baldwin, who will do \$60,000 worth of work with the dredge Continental.

The Pennsylvania company will cut off 50 feet of the west corner of their dock at the entrance of their short slip at Ashtabula. Large steamers will then have no trouble in getting in.

The annual report of the Buffalo merchants' exchange including commerce statistics, prepared by William Thurstone, secretary, presents some valuable figures on lake business at that port.

John L. Kellogg, formerly third assistant freight agent of the Chicago & Milwaukee Railway, succeeds Stewart Murray as the Milwaukee agent of the Lehigh Valley Transportation Company.

President S. D. Caldwell, of the Council of Lake Managers, desires it stated that there is at present no Lake Managers' Association, the name having been changed to the Council of Lake Managers.

Superintendent of Public Works Edward Hannan, has ordered that the Erie canal and the Champlain, Black River, Oswego, Cayuga and Seneca canals be opened for navigation on Tuesday, May 5.

Suit has been commenced at Detroit against the Sea and Manheim's insurance companies for a fire loss of \$16,353 sustained by the steambarge J. E. Potts last season at Debray. She was insured for \$20,166 against fire.

The Milwaukee and Eastern Transit Company has purchased the City of Marquette, built at Manitowoc last year by C. Endres & Son. She will run between Milwaukee and St. Joseph. The price was \$18,000.

Commander Clark, who had charge of the light-house district of which Chicago is the center, has been transferred to Mare island navy yard, San Francisco. He will be succeeded by Commander Nicol Ludlow, a brother of Col. William Ludlow, of Detroit.

Capt. Ed. Dahlke, of the tug American Eagle, picked up the body of a man who had fallen off the Cleveland breakwater. He drowned although his coat was buttoned in such a way that he didn't sink. This makes forty bodies that the captain has taken from the water.

Capt. Alexander Davidson died at Bayfield aged seventy years. He had traversed the waters of Lake Superior since 1850, was assistant light keeper for many years at Outer island, one of the Apostle group, and afterward was appointed keeper of the Chequamegon light.

If any of our readers are thinking of subscribing for a marine paper we would advise them to try the Cleveland Marine Review. It is the only first class publication devoted to lake marine interests and vessel men will find it just what they want. —Cheboygan News.

Chicago is making a great fuss over her tug war which has resulted in a cut of 50 per cent. from card rates. Cleveland doesn't lay claim to anything so pretentious as a war but the card rates will be cut all the way from 20 to 80 per cent. and there will be four competing lines, the new line consisting of the American Eagle, Dudley and Dreadnaught.

The Sheriffs Manufacturing Company, Milwaukee, have shipped three wheels—a 36, a 38 and 48-inch—to Stillwater, Minn., for rafting tugs. They have also forwarded two 5-foot wheels to Duluth, and will forward three more to the same port

on the opening of navigation. A 4 feet 4 inch wheel is also being finished for Escanaba, and a 6-foot wheel for New Orleans.

D. Whitney, Jr., of Detroit, disagreed with the county officials regarding taxes on his vessel property and has formed a corporation with headquarters at Hamtramck. It will be known as the Whitney Transportation Company, the stock being held as follows: D. Whitney, Jr., 6,390; Charles Stinchfield, 360; David C. Whitney, 450; John Dalzell, 360; James A. Remick, 220; George B. Remick, 220.

About 10,000 tons of ore per day can be received at Erie and there is storage room for 300,000 tons. Dock No. 4 has been completed at a cost of \$200,000. It extends 800 feet into the bay and has a 400-foot arm to the east. The Pennsylvania company will build a similar dock east of this one. Contractor Donnelly will begin the work of extending the breakwater about June 1. The Anchor Line will also build a new dock.

Cleveland Matters.

William A. Woods has been appointed deputy collector of customs at Lorain, Cleveland district.

Alexander Masterson, supervising inspector of steam vessels stationed at Buffalo, was in the city on official business during the week.

Capt. Bates, who has held the position of harbor master in Cleveland for two years past, will in all probability be reappointed to the position. A petition in his favor contains the names of the great majority of leading vessel owners.

Dr. G. A. Hausher, who died recently at Buffalo, was a son of Louis Hausher, well known in connection with river business in Cleveland. Dr. Hausher was a graduate of Wooster college, of 1883 and was very favorably known here.

Capt. Edward Kelley, last season in the propeller Fedora, has been selected by the light-house board to look after the work of the building of lightships for the Straits. The boats are being built in the yard of the Craig Ship Building Company of Toledo, and Commander Clark, of Chicago, is the naval officer in whose district they will be used.

The Cleveland City Forge is engaged in forging a rudder-post that will weigh twelve tons for one of the battle ships building at Philadelphia. It is by far the largest forging of this kind ever made in Cleveland and probably the largest ever made in this country, as the Cleveland concern is the largest forge in America and second to only one other in the world.

The wholesale coal and fuel business heretofore carried on at Cleveland, by Mullen & Co., will in future be known under the name of The Cuddy-Mullen Coal Company. The location of the office and docks remains unchanged and the new firm announces that general facilities for taking care of the trade during the ensuing season will be better than ever before.

The Ludlow Manufacturing Company made a contract a few days ago to furnish the Toledo & Ohio Central coal docks at Toledo with a full set of their coal buckets, 1½ tons capacity. The Cleveland & Pittsburgh docks, Cleveland, will have twenty-one of these buckets in service this season. The great feature of these buckets is their special adaptability to the economical handling of soft coal.

The wooden propeller Atlanta, building at the yard of the Cleveland Dry Dock Company for the Goodrich Transportation Company, will be launched at 3 p. m. Saturday, and the Virginia, the twin screw steel boat, building at the Globe yard for the same company, will go into water about one week later. The stern of the twin screw boat, with its double shaft openings, shows an arrangement of plates that is very pleasing to the eye.

The MARINE REVIEW presents valuable statistics.

The MARINE REVIEW presents beautiful supplements.

Each number is worth keeping. Send 75 cents to the MARINE REVIEW for a binder that will hold 52 numbers.

Work of the Ship Yards.

The City of Chicago, was launched from Wheeler's yard, Thursday, after being lengthened 14 feet. She draws one foot less water than she did at first and she can carry 500 more passengers. The cost of lengthening her was \$15,000.

Capt. O. Hanson is well pleased with his almost new schooner Naiad as she was turned out of Burger & Burger's dock, Manitowoc. Among other things she received new deck beams and was thoroughly recaulked.

Miller Brothers will lengthen their stationary dock at Chicago to 350 feet. The Majestic 310 feet over all cannot get into a Chicago dry dock.

The passenger steamer Pilgrim was launched at Buffalo. She is 125 feet long, 26 feet beam and will be used for Buffalo excursion business.

The tug Keystone, launched from Bell's Buffalo yard last week, is 90 feet long, 19 feet beam and 11 feet hold. Her yard number is 39.

The Polson Iron Works Company, of Owen Sound, has been awarded by the Canadian government the contract for the construction of a composite vessel for the fisheries protection service. The length of the vessel is to be 125 feet, breadth 18 feet, depth about 9 feet 6 inches and of 250 tons register. Her frames will be of steel and planking of wood. She is expected to be a fast sailor and will be available for service either on the lakes or in the gulf. Her draft will not exceed 8 feet, so that she will have no difficulty in going up and down the St. Lawrence.

Excelsior Marine Benevolent Association.

Secretary Vance, of the Milwaukee association, writes the REVIEW that M. W. Graham, Albert Gibbs and Dennis Sullivan were initiated and that Capt. Christianson and Frank Richardson were elected members. This association is being favored with visits from large numbers of members from other associations.

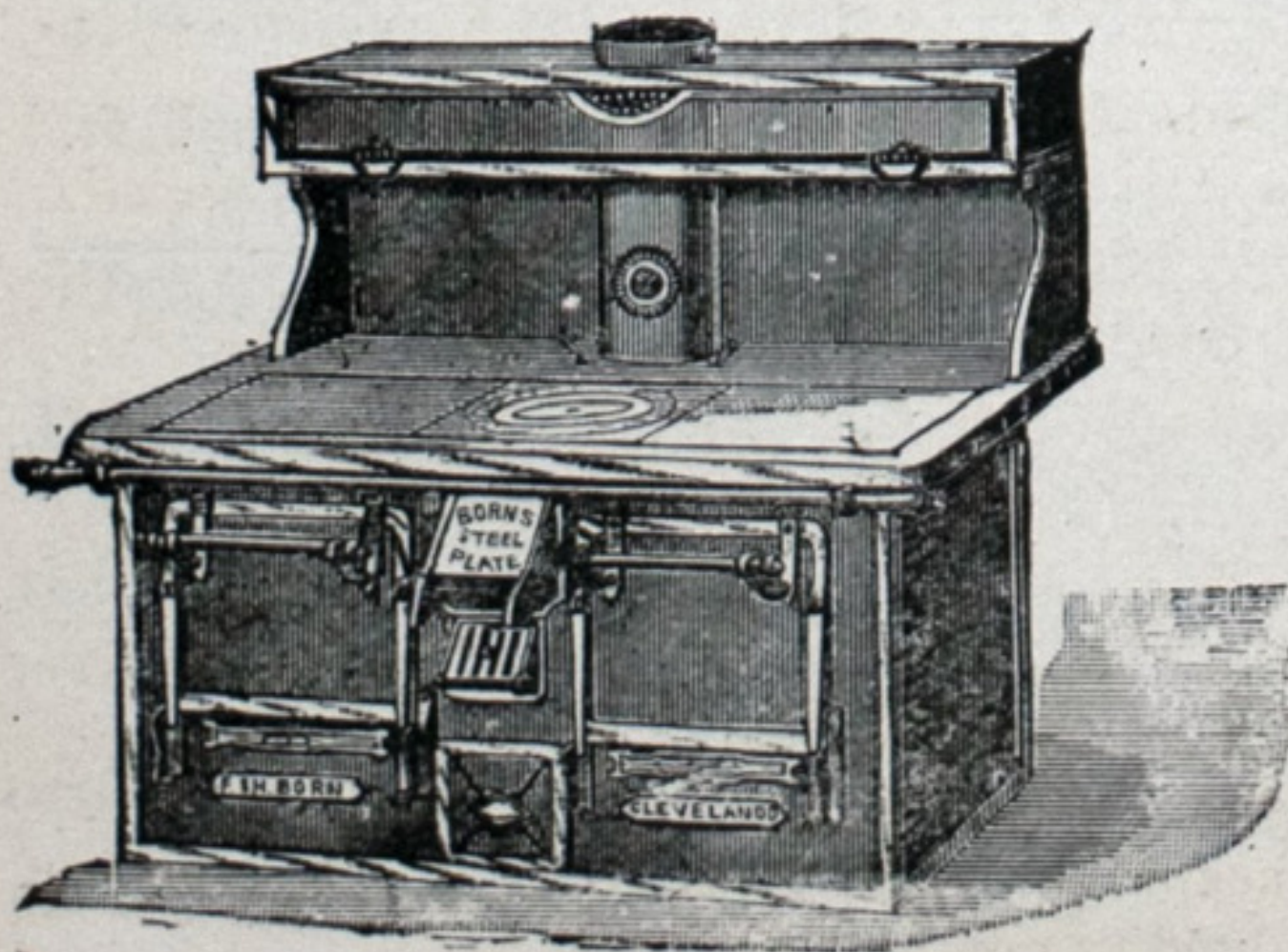
John A. Landfair, George A. Bell, of Vermillion, John W. Farwell, William P. Wheeler, Charles D. Miller, C. A. Peterson and O. E. Moore, of Sandusky, were admitted to full membership in the Cleveland lodge last week. The last regular meeting of the lodge will be held Friday of this week.

The last meeting of the new Detroit association has been held and they close their books with ninety members initiated. Considering that the branch was installed only about a month ago the growth is wonderful and next season it is expected that the increase will crowd the older lodges for membership.

Grand Secretary Collier gives notice that the time for the payment of No. 10 assessment expires April 25.

Opening Movements.

Lower lake navigation can be said to have fairly opened. The ice in St. Clair flats and at the Straits of Mackinac began to move Wednesday, so that by this time the large boats are probably passing these channels without much difficulty. The City of Charlevoix pushed into St. Ignace, being the first boat from Lake Michigan. She encountered heavy ice near McGulpin's point. The schooner Badger passed down the north passage. This makes the opening of the straits fifteen days later than last year, when the Aurora passed through April 5. The Harlem, Syracuse, Tioga and Lehigh left Chicago for Buffalo and up-bound line boats were waiting for the ice to move, Wednesday afternoon, a mile below the canal. The Boston joined the waiting fleet Wednesday. It consisted of the Susquehanna, Atlantic, Albany, Jewett, Hudson, Lackawanna, Scranton, Cayuga and Weed.



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MANUFACTURERS OF

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For Steamships and Vessels, Hotels, Restaurants and Private Families.

Every Range Warranted. Adapted for Hard or Soft Coal, Coke or Wood.

During the past year the following steel steamships have been fitted with these Ranges: Tuscarora, Manola, Mariska, Republic, Maruba, Matao, Norman, Saxon, German, Briton, La Salle, Joliet, J. H. Wade, Western Reserve, Cleveland Ship Building Company's Nos. 10 and 12, and the Wawatam. In addition to this list, comprising the finest steel steamers on the lakes, the following also have Born's Steel Ranges: Passenger Steamers, City of Detroit and American Eagle; Propellers, Aurora, C. W. Elphicke, Forest City, Yakima, Kalkoska, Missoula, Olympia, J. H. Outhwaite's Raleigh, Spencer, Sitka and Spokane, and the handsome steel steam yacht Peerless.

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REPRESENTED BY

THE TUITE & REIN MFG. CO., 239 Jefferson Ave., Detroit, Mich.

TALLMAGE BROS., Seneca St., Buffalo, N. Y.

PROPOSALS FOR DREDGING. U. S. Engineer Office, Grand Rapids, Mich., March 28, 1891. Sealed proposals, in triplicate, will be received at this office until noon of April 28, 1891, for dredging in Manistee River and Harbor, Mich. The quantity of material to be removed is between 50,000 and 60,000 cubic yards. Attention is invited to Acts of Congress approved February 26, 1885, and February 23, 1887, vol. 23, page 332, and vol. 24, page 414, Statutes at Large. The government reserves the right to reject any or all proposals. For information, specifications, etc., address as above. WILLIAM LUDLOW, Major, Corps of Engineers, Bvt. Lieut. Col. U. S. A. Apr. 23

"THE MICHIGAN"

ISSUES POLICIES ON HULLS AND CARGOES ON FAVORABLE TERMS. IT IS FOR THE INTEREST OF THE OWNERS OF THE LAKE MARINE TO BUILD UP A HOME COMPANY BY THEIR PATRONAGE.

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Can be applied without disconnecting the rod, prevents blowing or leaking of steam, cutting of rods or the blistering or rusting of rods when engine is not in use.

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47—FOR SALE—New Barge building, 127 ft keel, 30 ft. beam, 9½ hold, diagonally strapped, steeple compound engine, 14 in., 28 in. by 24 in., 125 pounds steam.

48—A few shares of stock in a first class passenger transportation company, for sale at \$100 each.

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52—WANTED—Tug Engine 20 x 20 or 18 x 22, with good boiler.

53—WANTED—Fishing tug, 60 feet long.

54—WANTED—Good mate for passenger boat, must have small capital to invest.

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56—WANTED—a tug 70 feet keel, 14 feet beam and 5 feet hold, in fair order, delivered in Duluth.

57—WANTED—tug about 50 feet long, flat bottom boat capable of carry 50 people on shallow water, and a steam yacht large enough for 25 persons and built so as to be allowed to run on Lake Michigan.

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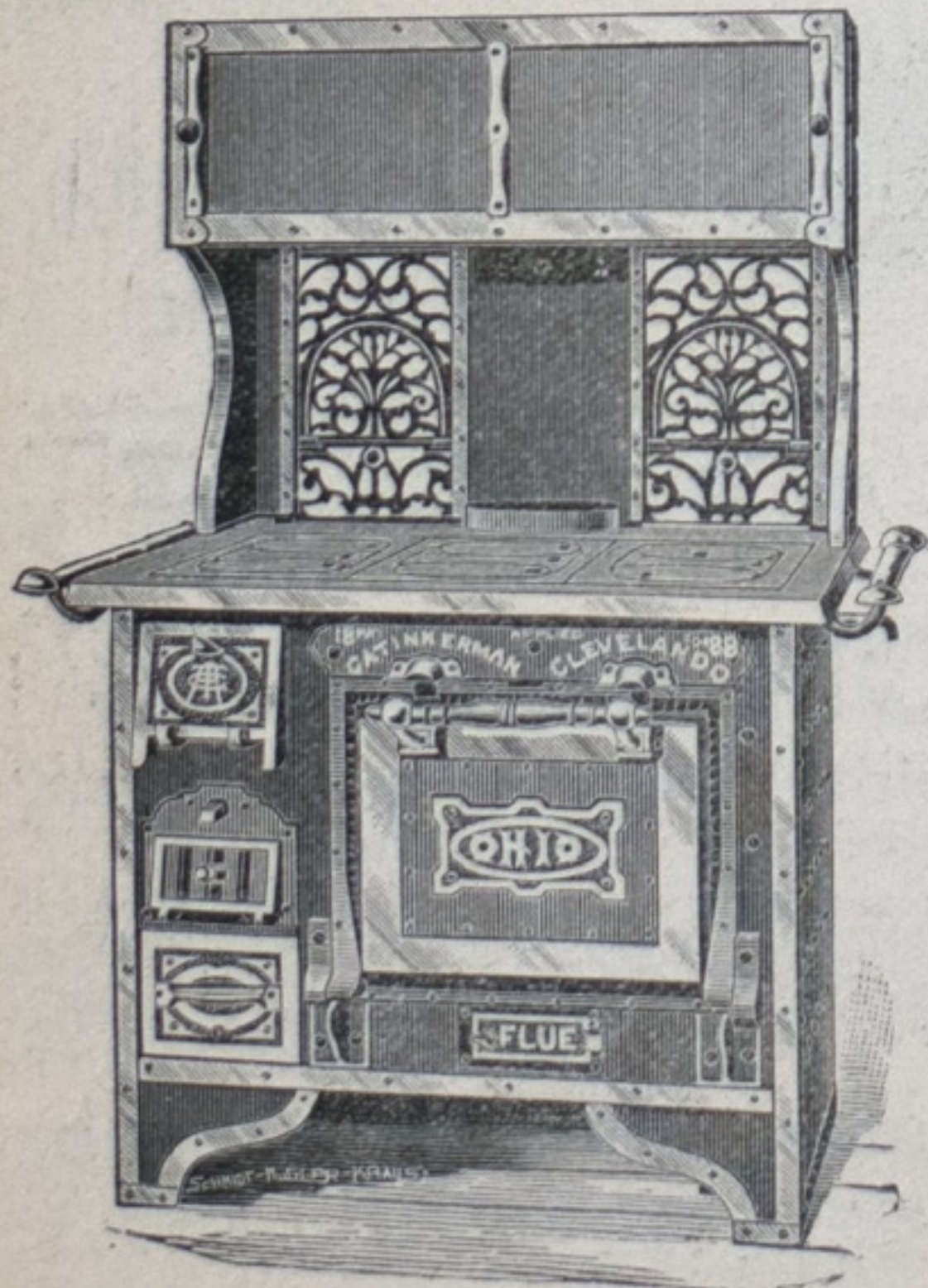
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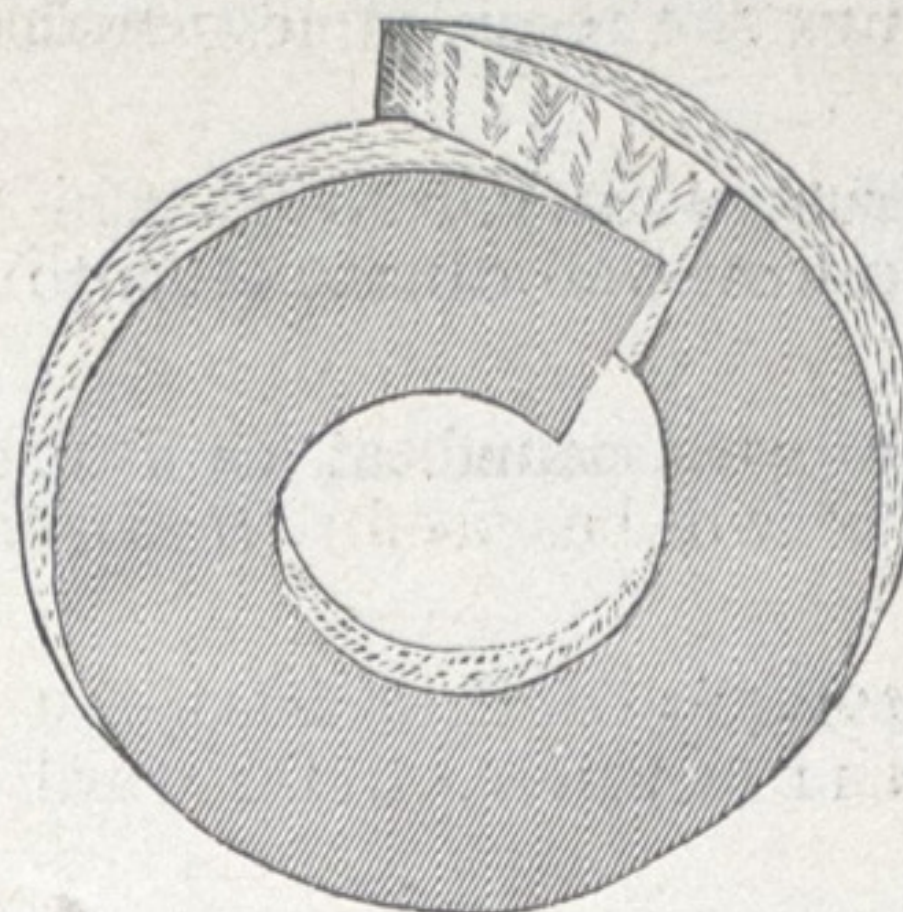
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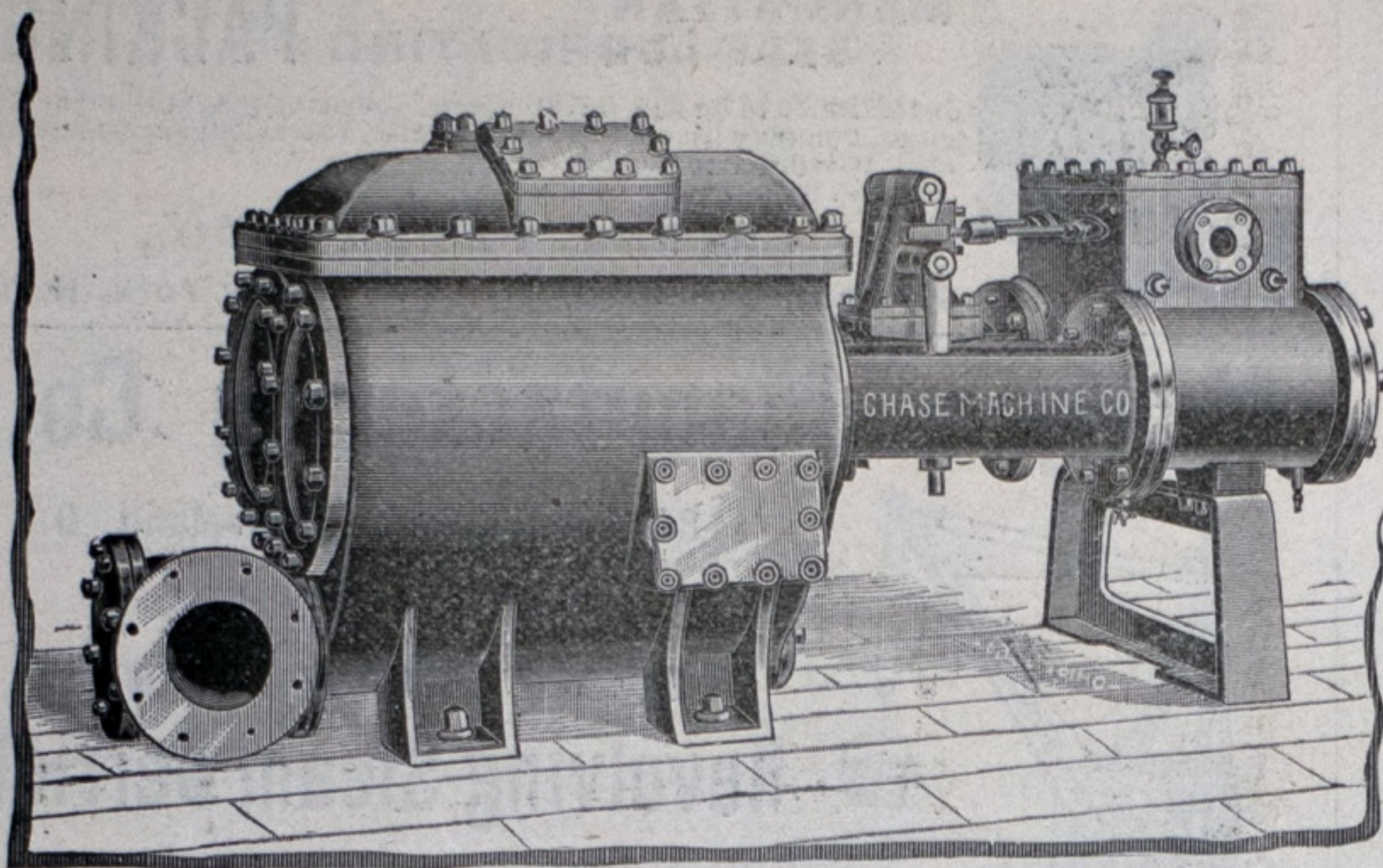
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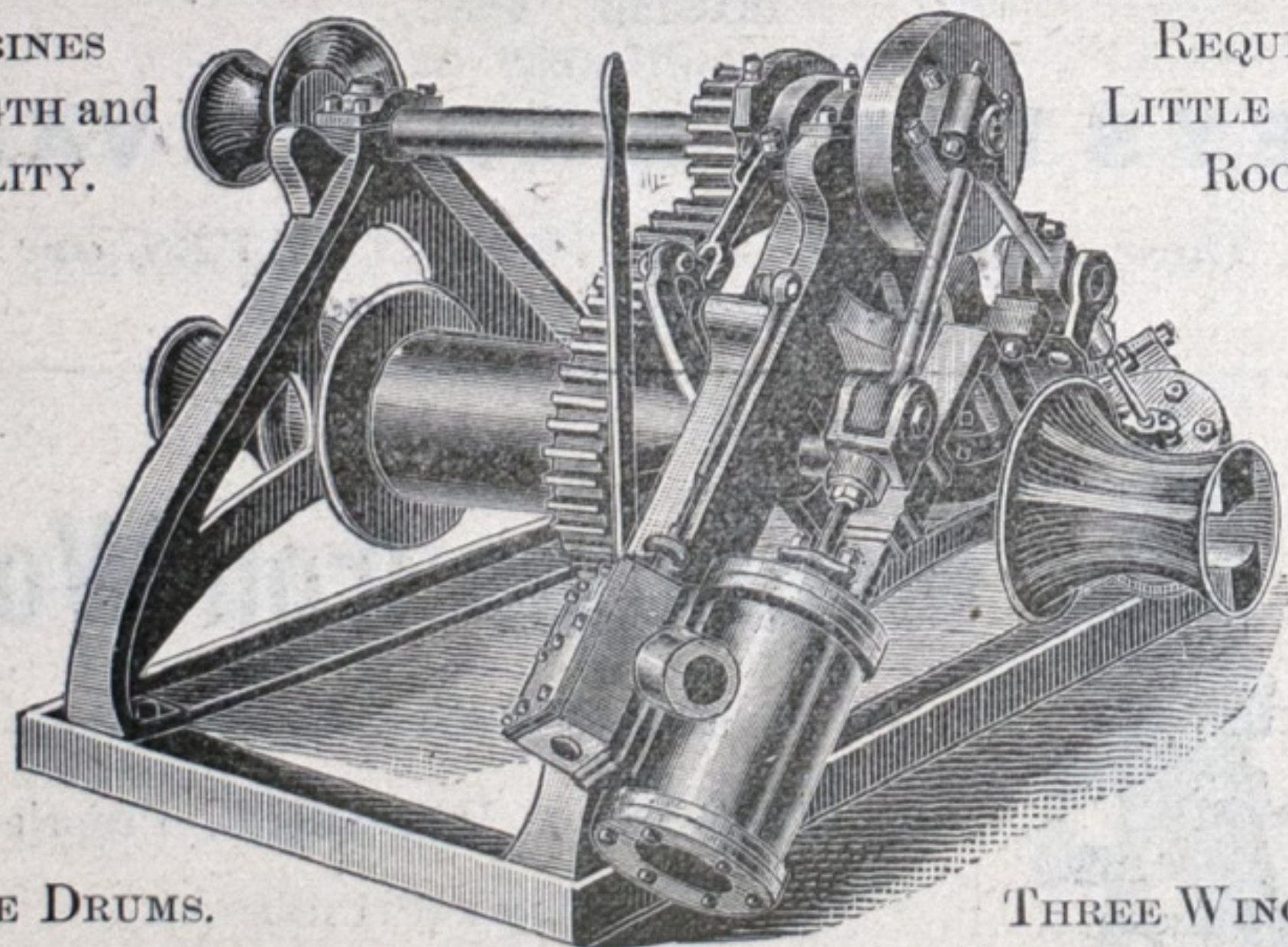
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Detroit Dry Dock Co.	Detroit, Upper Docks,.....	{ 239 300	{ 42 56	{ 8 12	Watchman. Will call Sup't.
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GENTLEMEN: I had occasion on the 13th of November to use your Extinguisher on board the steamer Queen of the West, of Cleveland. A large lamp used for signal purposes aft, fell about twenty feet and set fire to the whole roof of the engine room. I do not know what the consequences would have been but for the prompt and effectual way in which your extinguisher put out the fire, as the wind was blowing hard and a heavy sea running at the time. I heartily recommend your machine as a fire extinguisher on all classes of steamships. Yours truly,

JOS. A. NICOLSEN, Master Str. Queen of the West.

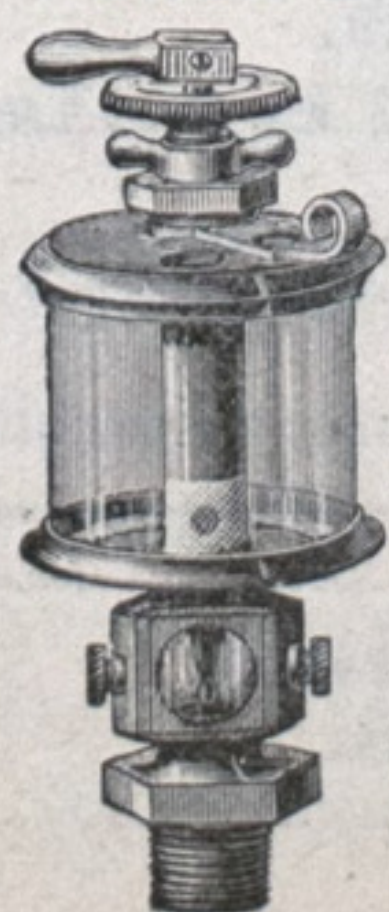
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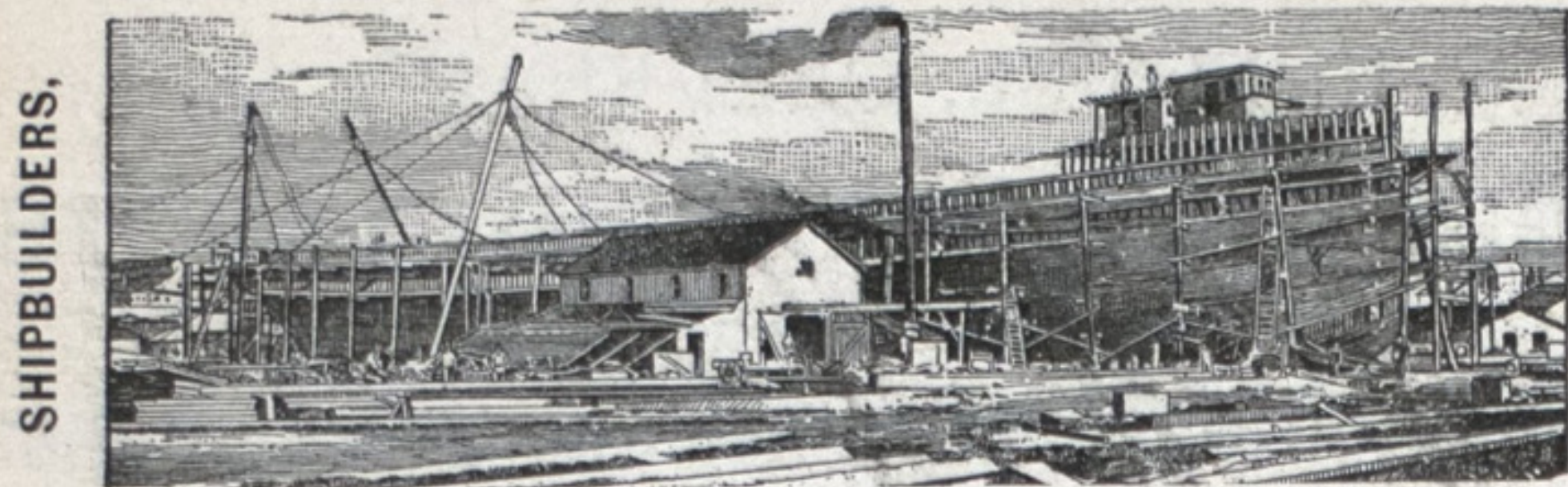
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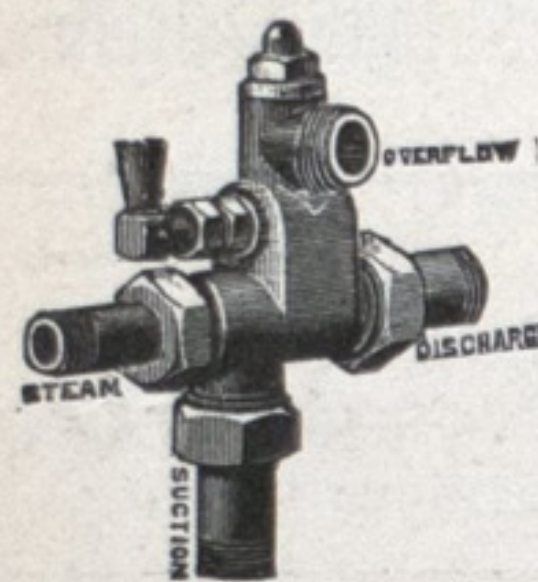
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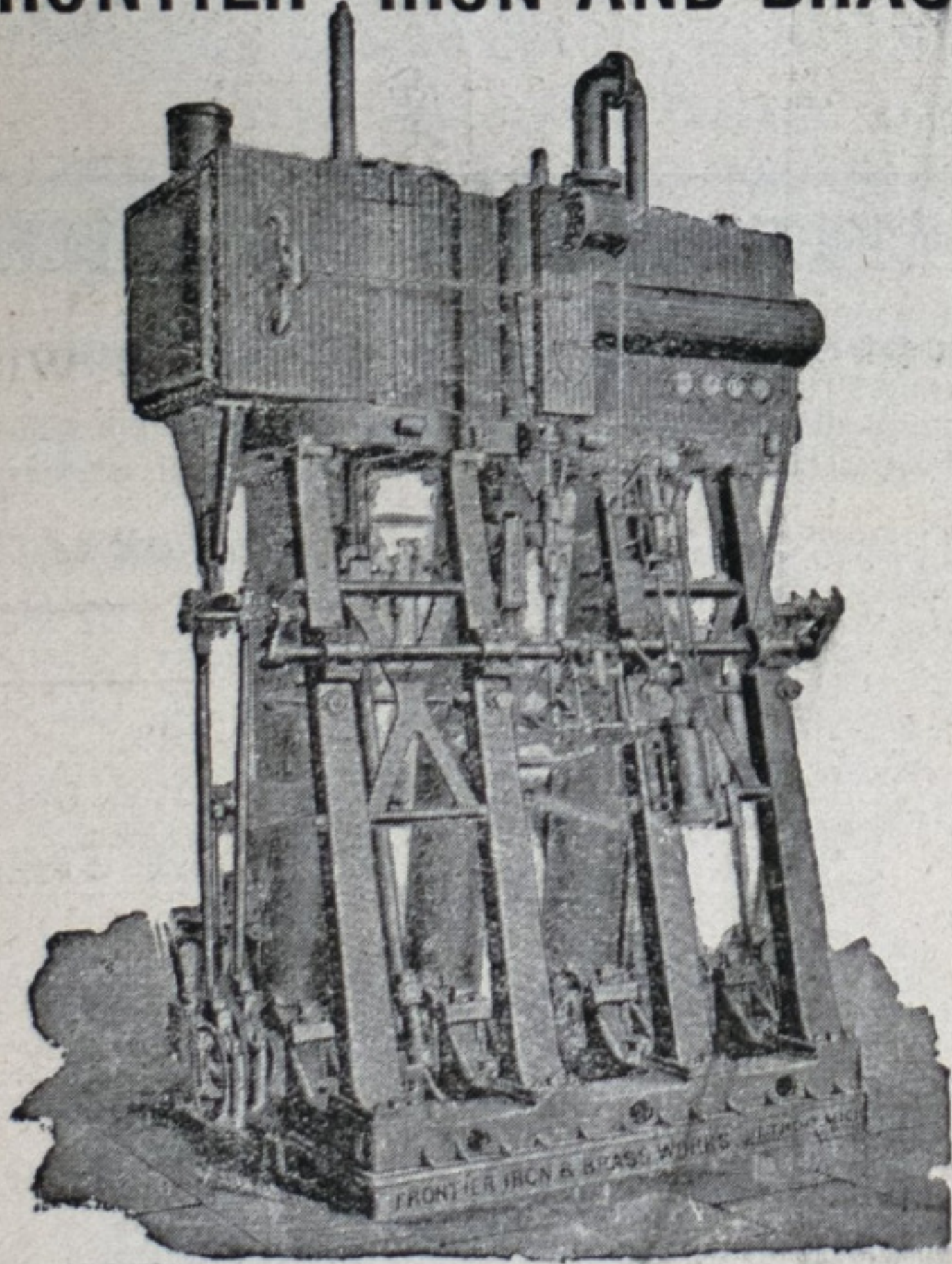
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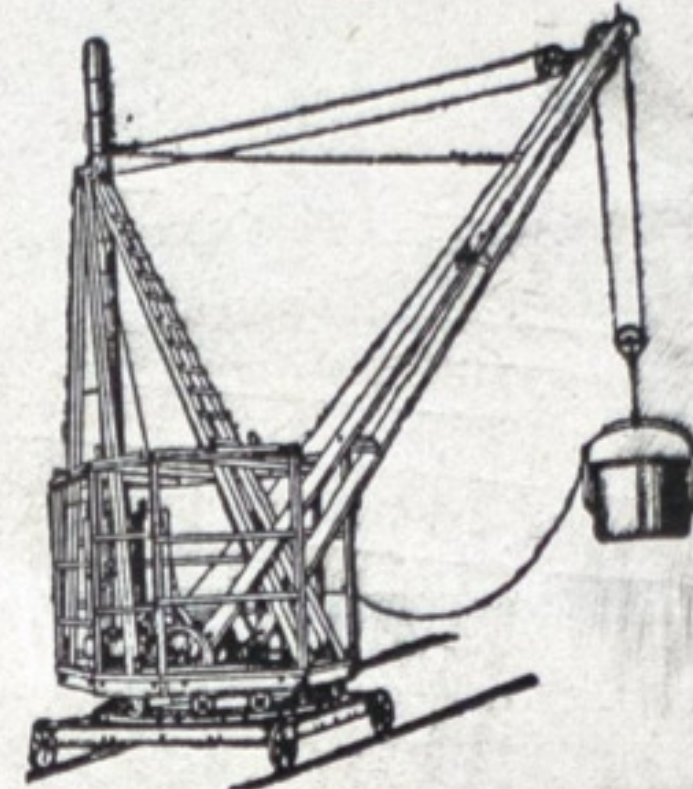
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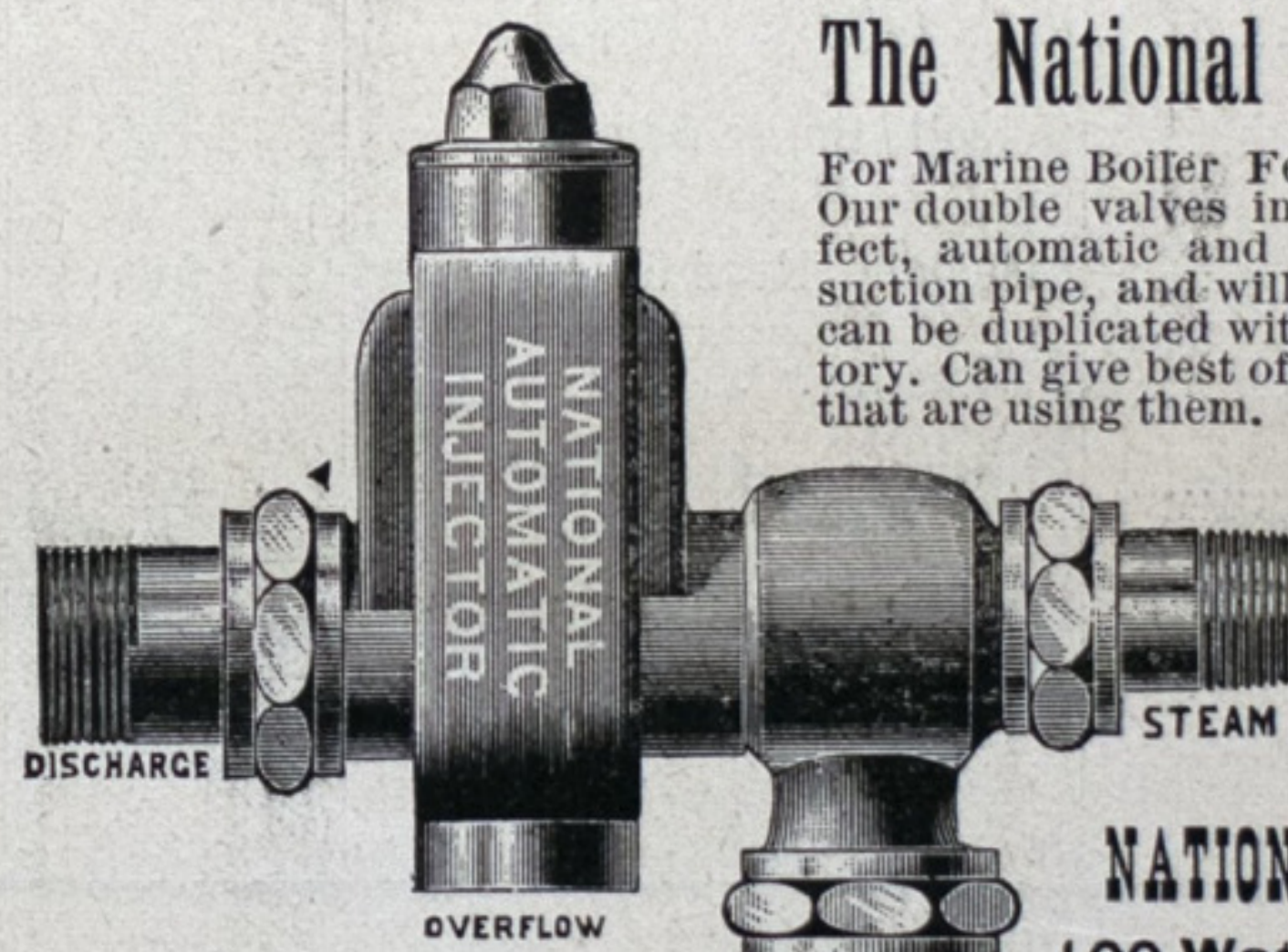
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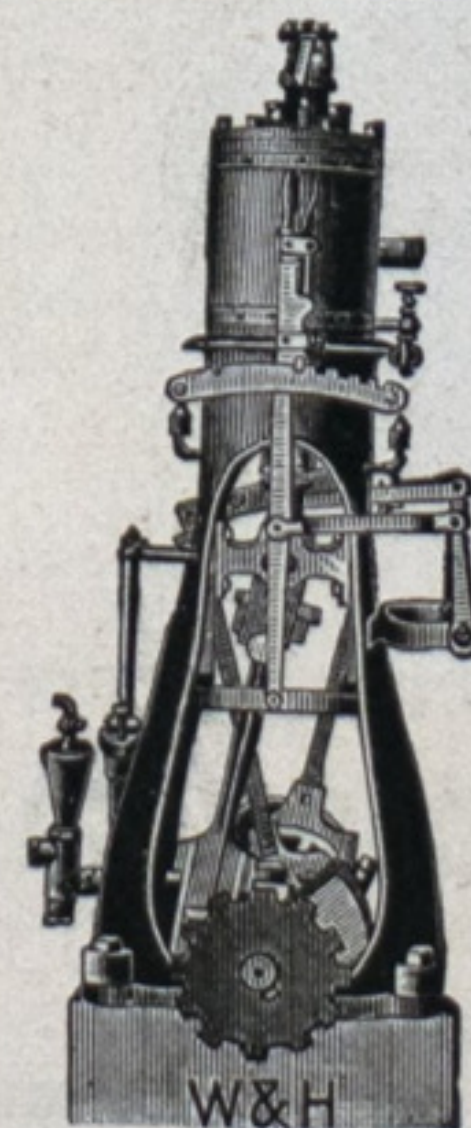
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